

SWEETWATER CARBON STORAGE HUB

Developer / Lead: Frontier Carbon Solutions

Location: Sweetwater County, WY

Status Category: Permitted / Under Development

Prepared By: Carbon Solutions

OVERVIEW

The Sweetwater Carbon Storage Hub is among the first state-issued Class VI projects in the U.S.; Wyoming's first three were issued in Dec 2023. It is a cornerstone of Wyoming's emerging carbon management industry. Developed by Frontier Carbon Solutions, the hub is designed to sequester CO₂ from emitters in Wyoming and across the Midwest, supported by associated rail and pipeline infrastructure. With its early permits and strong partnerships, the project demonstrates Wyoming's leadership in commercial-scale geologic sequestration.

OBJECTIVES

Commercialize Geologic Storage at Scale – Create a dedicated hub capable of injecting millions of tonnes of CO₂ annually into deep saline formations with verified long-term containment.

Support Regional and National Emitters – Offer cost-effective sequestration services to power plants, industrial facilities, and other CO₂ sources across Wyoming and the broader Midwest, using both pipeline and rail delivery options.

Advance Wyoming's Decarbonization Leadership – Position the state as a national model for hub-scale storage by demonstrating an integrated system that combines geology, permitting, infrastructure, and private investment.

PROJECT DESIGN

Geology: Targeting Nugget Sandstone (stacked storage potential in the Greater Green River Basin; NETL also references Nugget + Weber).

Infrastructure: The hub is directly tied to the Granger Carbon Terminal, a rail-based facility capable of receiving and offloading CO₂ from Midwestern emitters for permanent storage. This multimodal approach ensures flexibility and scalability as demand grows.

Partnerships and Technology: Frontier has partnered with Baker Hughes to provide well design, compression systems, NovalT turbines (256 MW) for hub operations, and advanced monitoring technology. This partnership brings global expertise to Wyoming and ensures the hub is built to the highest technical and safety standards.

STRATEGIC IMPORTANCE

The Sweetwater Carbon Storage Hub is closely tied to several Frontier Carbon Solutions initiatives that expand its capacity and connectivity. **Project Speed Goat** serves as the hub's Class VI expansion, adding new wells west of Green River to increase long-term injection potential. The **Granger Carbon Terminal** provides a rail-based facility capable of receiving and offloading CO₂ from Midwestern emitters, ensuring a reliable link between capture projects and Sweetwater's storage operations. Complementing this, the planned **Rendezvous Carbon Terminal** will introduce multi-modal handling capabilities, further broadening the hub's reach. Together, these associated projects integrate capture, transport, and storage infrastructure, positioning Sweetwater as a central node for regional and interstate CO₂ management.

TIMELINE / MILESTONES

2023 – Wyoming DEQ issued the state's first three Class VI permits to Frontier for wells west of Green River, advancing the Sweetwater hub.

2024–2025 – Frontier conducted deep characterization and monitoring activities; the first deep characterization well was completed with a second well commencing, to verify geologic integrity and inform operations.

Mid-2020s (anticipated) – Initial CO₂ injection is expected to commence, with operations scaling up as additional wells and supporting infrastructure come online.

KEY FACTS

- **Acreage Secured:** 51,230 acres permitted under Wyoming DEQ, including 45,000+ acres of private and state pore space.
- **Federal Lands:** Pending BLM review for 44,350 acres of additional pore space (NEPA underway).
- **DOE Role:** CarbonSAFE Phase III awardee with \$43.3M in federal funding and \$9.1M from Wyoming's Energy Matching Funds.
- **Community & Workforce:** Frontier has hosted open houses, engaged schools and the University of Wyoming, and launched CCS training programs to build a regional workforce.
- **Storage Capacity:** Designed to store up to ~350 million tonnes of CO₂ in deep saline formations in southwestern Wyoming.
- **Associated Projects:** Trona processing remains a primary anchor CO₂ source, with additional capture opportunities under evaluation from regional natural gas and industrial operations.

